REMARKS

Claim 10 has been amended in order to more particularly point out, and distinctly claim the subject matter to which the applicants regard as their invention. The applicants respectfully submit that no new matter has been added. It is believed that this Amendment is fully responsive to the Office Action dated **March 29, 2004**.

Objection to the Drawings

The Examiner has indicated that the drawings must show every feature of the invention specified in the claims.

Specifically, the Examiner has objected to claim 9 asserting that the drawings do not show a scaling circuit that scales the image data supplied from the second weighting factor multiplier circuit.

Claim 9 is directed to the configuration shown in Fig, 6. Specifically, regarding the elements recited in claim 9 and those shown in Fig. 6, a plurality of first weighting factor multiplier circuits in claim 9 correspond to the weighting factor multiplier circuits 32a and 32b in Fig. 6, the second weighting factor multiplier circuit corresponds to the OSD data combining circuit 33, the scaling circuit corresponds to the scaling circuit 34, and a plurality of combining circuits correspond to the combining circuits 38a and 38b.

Regarding the above-described elements, it is disclosed on page 18, lines 20-26 of the specification that OSD data, namely the image data output from the OSD data combining circuit 33

is differently scaled according to the resolution which is different depending on the display unit, and the scaled image data is output to the combining circuits 38a and 38b.

Therefore, the applicant believes that Fig. 6 of the present application discloses the scaling circuit performing scaling appropriate for the resolution of each of a plurality of image display units on image data output from the second weighting factor multiplying circuit as defined in claim 9 of the present application.

Further, the Examiner has objected to claim 10 asserting that the drawings do not show a decoding unit that reproduces the first and second image data from the output of a separating unit.

Claim 10 has been amended. Specifically, the decoding unit is replaced by first and second data generation units to clarify the correspondence between elements in the claim and those in the drawing.

Claim 10 is directed to the configuration shown in Fig, 3. Specifically, the tuner in claim 10 corresponds to the tuner 22 in Fig. 3, the separating unit corresponds to tho DEMUX 23, the first data generation unit corresponds to the MPEG decoder 24, and the second data generation unit corresponds to the CPU 25.

As described on page 13, lines 28 to 31, the MPEG decoder 24 generates moving image data corresponding to tho first image data and the CPU 25 generates a plurality of OSD data corresponding to the second image data.

Therefore, the applicant believes that Fig. 3 of the present application discloses all the features of the present invention defined in claim 10.

Claim Rejections under 35 USC §112

Claims 10-14 are rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 10 has been objected to as lacking antecedent basis for the phrase "said multiplied second image data". Taking the Examiner's comments into consideration, claim 10 has been amended. Therefore, withdrawal of the rejection of Claims 10-14 under 35 USC §112, second paragraph, is respectfully requested.

Claim Rejections under 35 USC §103

Claims 1 and 2 are rejected under 35 USC §103(a) as being unpatentable over Mills (U.S. Patent No. 5,953,691).

Claims 10 and 11 are rejected under 35 USC §103(a) as being unpatentable over Singh et al. (U.S. Patent No. 6,493,038) in view of Mills (U.S. Patent No. 5,953,691).

The present invention is an image data output device (1000) that includes a scaling circuit (1) scaling moving image data according to the resolution of a display unit. Further included is a weighting factor multiplier circuit (2) multiplying OSD data by a weighting factor. Also included

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is a weighting factor multiplier circuit (3) multiplying the moving image data scaled by scaling circuit (1) by weighting factor (1 - fa). Still further included is a scaling circuit (4) scaling the OSD data multiplied by the weighting factor by weighting factor multiplier circuit (2), and a combining circuit (5) adding the moving image data supplied from weighting factor multiplier circuit (3) to the OSD data supplied from scaling circuit (4) to generate image data.

Mills describes a processing system with graphics data prescaling. This processing system includes an alpha prescaler (112) arranged between a converter (102) and a mixer (106). The alpha prescaler (112) multiplies the YUV signal by the quantity 1-α. α may represent one of nine blending values. The mixer (106) further contains an interpolator (114) that performs a horizontal filtering operation on the prescaled YUV singal and the initial alpha blending value to generate an interpolated scaled YUV signal. A multiplier (118) scales the decoded video signal and the result is combined with the interpolated scaled YUV signal in the signal combiner.

Singh et al. describes a multi-window PIP television. This television includes a PIP module (60) which accepts four sources of video input. A hybrid tuner (51) is provided in digital module (50) and an analog tuner (61) is provided in the PIP module (60). Further, a media processor (53) is provided in digital module (50) which outputs decompressed pictures on DV1 port and graphic data having a program guide on the DV2 port.

The present invention recited in claims 1 and 10 has the feature that the first image data representing a moving image is scaled and thereafter weighted by the first image data processing circuit while the second image data representing an image including characters and graphics is

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weighted and thereafter scaled by the second image data processing circuit,   In other words, the invention is directed to the image data output device performing the weighting operation and the scaling operation <u>in an appropriate order which is different depending on the type of the image to be processed.</u>

An advantage derived from the invention recited in claims 1 and 10 is that, as described on page 6, line 26 to page 7, line 4 of the specification of the present application, image data corresponding to the first image data representing a smoothly changing moving image is first scaled and thereafter multiplied by a weighting factor by the first image data processing circuit, and therefore, the first image data is scaled with less edge portions as compared with the case where the first image data is first multiplied by a weighting factor, so that such image deterioration as overshoot and undershoot can be lessened.   Further, OSD data corresponding to the second image data representing characters for example and having numerous edge portions is first multiplied by a weighting factor and thereafter scaled by the second image data processing circuit, and therefore, the second image data is scaled with a smaller difference in data value between edge portions as compared with the case where the second image data is first scaled, so that such image deterioration as overshoot and undershoot can be lessened,

A resultant effect unique to the present invention is accordingly that moving image data and OSD data with lessened image deterioration like overshoot and undershoot can be combined into composite image data which is to be reproduced with high image quality.

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The Examiner identifies the alpha prescaler 112 of Mills (USP 5,953,691) as the first image data processing circuit and multiplier 118 thereof as the second image data processing circuit. The Examiner then contends that, while Mills does not disclose nor suggest that image data is scaled and thereafter weighted and image data is weighted and thereafter scaled, such processes are obvious for those having ordinary skill in the art.

It is described on page 2, line 22 to page 3, line 9 of the specification of the present application that, image data multiplied by a weighting factor has sharp edges and if the imago data in this state is scaled, a problem arises that overshoot and undershoot are likely to occur,   in contrast, it is more preferable for OSD data having numerous sharp edges that the OSD data is first multiplied by a weighting factor reducing the difference between edge portions and thereafter scaled.

In order to solve the above-described problem, the present invention provides the image data output device performing the weighting operation and the scaling operation in an appropriate order which is different depending on the type of the image to be processed, which is not disclosed nor suggested by Mills nor Singh et al. (USP 6,493,038).

Therefore, the applicant do not think it obvious for those having ordinary skill in the art that the multiplication by a weighting factor and the scaling are performed in an order appropriate for the image data to be processed, namely moving image data or OSD data, as required in claims 1 and 10,

In conclusion, both of Mills and Singh et al. do not disclose nor suggest the first and second image data processing circuits as required in claims 1 and 10 and those references thus cannot

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achieve the effect specific to the present application. Therefore, the applicant believes that the present invention recited in claims 1 and 10 is not obvious over Mills and Singh et al.

The applicant is of the opinion that the rejection of dependent claims 2 and 11 can be addressed by the above-described arguments. Claims 2 and 11 are allowable by virtue of their dependence from allowable independent claims.

Therefore, withdrawal of the rejection of Claims 1 and 2 under 35 USC §103(a) as being unpatentable over Mills (U.S. Patent No. 5,953,691) is respectfully requested.

Further, withdrawal of the rejection of Claims 10 and 11under 35 USC §103(a) as being unpatentable over Singh et al. (U.S. Patent No. 6,493,038) in view of Mills (U.S. Patent No. 5,953,691) is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claim 10, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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